

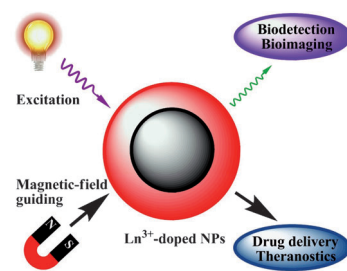


Bioprobes

D. Tu, Y. Liu, H. Zhu, X. Chen*

Optical/Magnetic Multimodal Bioprobes Based on Lanthanide-Doped Inorganic Nanocrystals

Must-see attractions: Lanthanide-doped inorganic nanoparticles have great potential as optical/magnetic multimodal bioprobes. Recent advances, from their design strategies to biomedical applications, are presented, with an emphasis on multimodal detection, in vitro and in vivo imaging, and medical diagnostics and therapeutics.



Chem. Eur. J.
DOI: 10.1002/chem.201204640

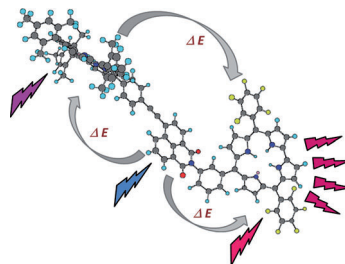


Porphyrins

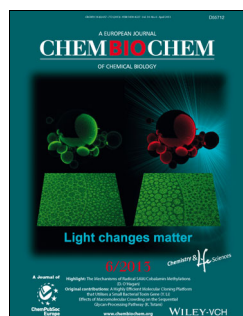
A. I. Ciuciu, L. Flamigni,* R. Voloshchuk, D. T. Gryko*

Light Energy Collection in a Porphyrin–Imide–Corrole Ensemble

Let's get (co)rolling: Light absorption in an assembly consisting of a free-base corrole and a Zn porphyrin connected by 1,8 naphthalene-imide results in a sequence of electronic energy transfer processes, ultimately concentrating the energy at the corrole extremity with a yield higher than 90%.



Chem. Asian J.
DOI: 10.1002/asia.201300014

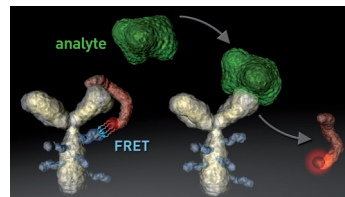


Biosensors

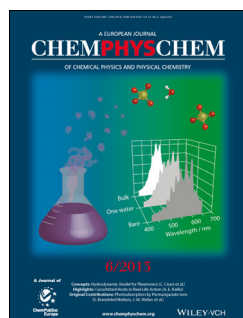
T. Kreisig, R. Hoffmann, T. Zuchner*

Highly Efficient Förster Resonance Energy Transfer in a Fast, Serum-Compatible Immunoassay

Highly efficient FRET leads to important enhancements for homogeneous immunoassays. By using the novel phosphorescent dye EuLH and BHQ-10 as a donor–acceptor pair, the FRET efficiency increases to >99.5%, leading to significantly improved signal-to-background ratio, precision and linear range. The phosphorescence detection enabled full compatibility to serum samples for this fast-responding immunoassay.



ChemBioChem
DOI: 10.1002/cbic.201300073

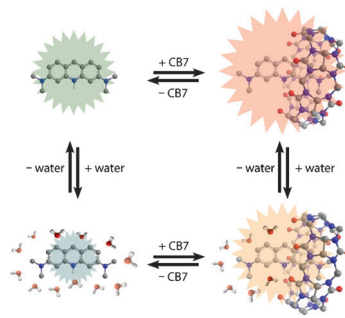


Photophysics

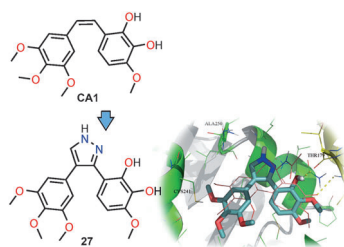
M. F. Czar, R. A. Jockusch*

Understanding Photophysical Effects of Cucurbituril Encapsulation: A Model Study with Acridine Orange in the Gas Phase

CB, or not CB: How the confined, hydrophobic environment offered by the interior of cucurbiturils (CBs) in some ways resembles the gas phase, and in other ways does not.



ChemPhysChem
DOI: 10.1002/cphc.201201008



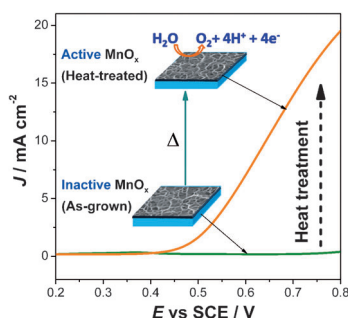
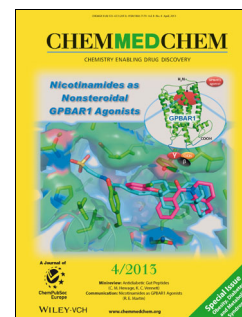
ChemMedChem
DOI: 10.1002/cmdc.201200561

Vascular Disrupting Agents

R. Zaninetti, S. V. Cortese, S. Aprile, A. Massarotti, P. L. Canonico, G. Sorba, G. Groso, A. A. Genazzani, T. Pirali*

A Concise Synthesis of Pyrazole Analogues of Combretastatin A1 as Potent Anti-Tubulin Agents

(Combreta)statin' the facts: A series of 3,4-diaryl pyrazole analogues of combretastatin A1 were concisely synthesized, one of which proved to be a cytotoxic anti-tubulin agent with low nanomolar potency. It retains the ability to form *ortho*-quinone species, which are assumed to be directly cytotoxic in tumor cells, while the pyrazole ring shows high metabolic stability, suggesting that this compound might give better pharmacokinetic profiles than the parent compound, with similar pharmacodynamic properties and clinical potential.



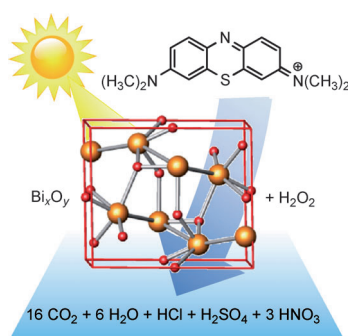
ChemSusChem
DOI: 10.1002/cssc.201200849

Water Oxidation

F. Zhou, A. Izgorodin, R. K. Hocking, V. Armel, L. Spiccia,*
D. R. MacFarlane*

Improvement of Catalytic Water Oxidation on MnO_x Films by Heat Treatment

One small step for manganese: A simple heat treatment at a low temperature ($< 120^\circ\text{C}$) on electrodeposited MnO_x films from aqueous electrolytes greatly improves the catalytic performance for water oxidation. This heat treatment involves a dehydration process and the formation of reduced Mn species without changing the morphology and bulk composition in the MnO_x films.



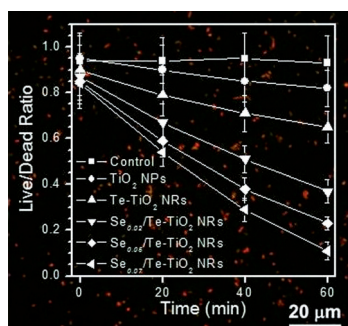
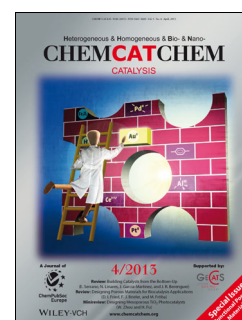
ChemCatChem
DOI: 10.1002/cctc.201200669

Photocatalysis

A. J. Ward, C. C. Weber, A. F. Masters, T. Maschmeyer*

Application of Bismuth-Impregnated Mesoporous Silica to the Photochemical Oxidation of Methylene Blue: An Example of Nanoparticle Autocatalysis

Less is sometimes more: The irradiation of a series of bismuth-impregnated mesoporous silicas (Bi-TUD-1) in the presence of peroxide show increasing degradation activity of methylene blue with decreasing bismuth loadings. Kinetic studies reveal that the active sites of the catalyst are generated autocatalytically.



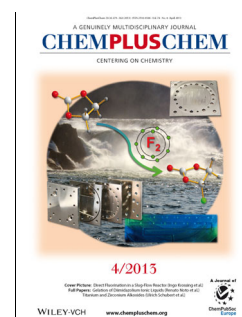
ChemPlusChem
DOI: 10.1002/cplu.201200281

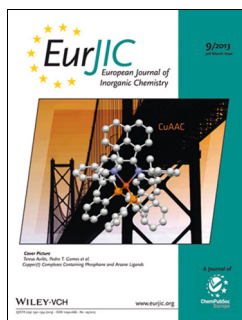
Antibacterial Agents

Z.-H. Lin, P. Roy, Z.-Y. Shih, C.-M. Ou, H.-T. Chang*

Synthesis of Anatase $\text{Se}/\text{Te-TiO}_2$ Nanorods with Dominant {100} Facets: Photocatalytic and Antibacterial Activity Induced by Visible Light

Antibacterial agents: Te-TiO_2 and $\text{Se}_n/\text{Te-TiO}_2$ nanorods (NRs) with exposed {100} facets are efficient photocatalysts and antibacterial agents against *E. coli* and *S. aureus* (see graph; background of red fluorescent stains represents dead or compromised cells). The activity mainly results from the generation of $\cdot\text{OH}$, TeO_3^{2-} , and SeO_3^{2-} ions.



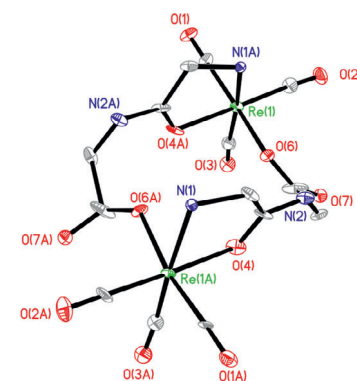


Rhenium Dipeptide Complexes

R. S. Herrick,* C. J. Ziegler,* K. L. Kennedy, C. Luu, J. T. Engle

Synthesis of C_2 -Symmetric Dimeric Re^I Peptide Complexes

Gly-Gly-OH and Gly-Ala-OH each react with $Re(CO)_3^+$ to produce $[Re(CO)_3(Gly-Xxx-O)]_2$, Xxx = Gly (**1**), Ala (**2**). Each compound was structurally elucidated and shown to be C_2 symmetric. Compound **1** displays a near-perfect rectangle shape with rhenium and α -carbon atoms at the corners.



Eur. J. Inorg. Chem.

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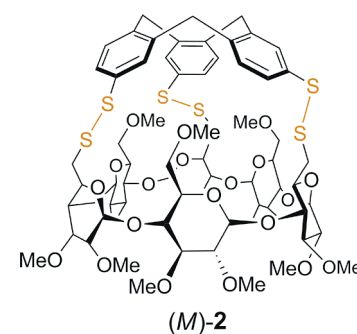


Supramolecular Chemistry

F. Brégier, J. Lavalle, J.-C. Chambron*

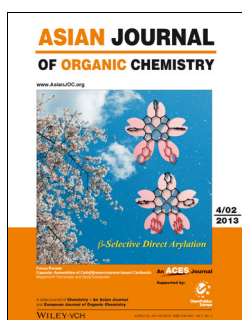
Capping α -Cyclodextrin with Cyclotrimeratrylene by Triple Disulfide-Bridge Formation

Hemicryptophanes based on permethylated α -cyclodextrin (PM α -CDX) were obtained as a diastereomeric mixture in a 5:3 ratio and 11% yield by reacting a C_3 -symmetric trithiol PM α -CDX derivative with the known chiral cyclotrithiophenylene under conditions (I_2/KI , Et_3N) that promote disulfide-bridge formation.



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DOI: 10.1002/ejoc.201201729

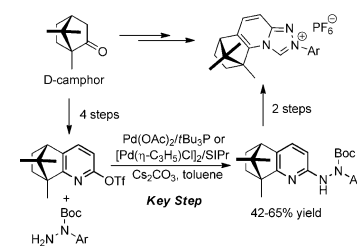


N-Heterocyclic Carbenes

L.-A. Chen, C.-F. Wang, M.-G. Lin, J.-L. Zhang, P.-Q. Huang, A.-E. Wang*

Design and Synthesis of Camphor-derived Chiral [1,2,4]Triazolo[4,3-a]-tetrahydroquinoline N-Heterocyclic Carbene Precursors by Pd-Catalyzed Coupling Reactions of Aryl Hydrazides with a Pyridyl Triflate Derivative

Which came first? A Pd-catalyzed coupling reaction of *N-tert*-butoxy-carbonyl (Boc) aryl hydrazines with a camphor-derived pyridyl triflate derivative has been developed by using bulky electron-rich phosphine or N-heterocyclic carbene as the ligand. With this C–N coupling reaction as the key step, camphor-derived chiral [1,2,4]triazolo[4,3-a]tetrahydroquinoline N-heterocyclic carbene precursors were synthesized. Tf = trifluoromethanesulfonyl.



Asian J. Org. Chem.

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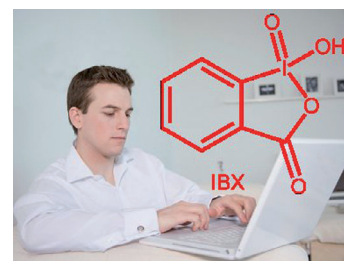


Chemistry Communication

David Bradley

Let Those Without Syn Cast the First Post

Is science changing in the digital age? The basic principles—observation, testing, corroboration, and refutation - remain the same and presumably always will. However, the tools used in these endeavors are changing. The role of bloggers in the attempted replication of data has increased openness and this public discussion has recently resulted in improved conditions for an old reaction.



ChemViews magazine

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